AB

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Scientific and Technical Information Center

SEARCH REQUEST FORM

Requester's Full Name: MARK BERCH Examiner # : [redacted] Date: 5/14/08

Art Unit: 1624 Phone Number: 2-0663 Serial Number: 10 533868

Location (Bldg/Room#): 5C01 (Mailbox #): 5618 Results Format Preferred (circle): PAPER DISK

****

To ensure an efficient and quality search, please attach a copy of the cover sheet, claims, and abstract or fill out the following:

Title of Invention: _____

Inventors (please provide full names): _____

_____

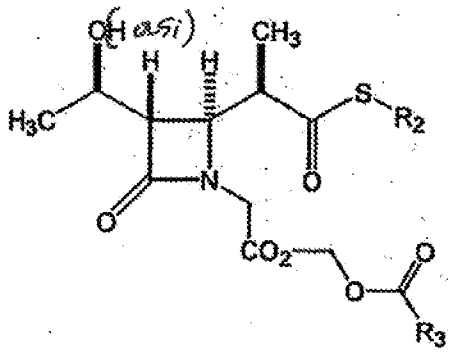
Earliest Priority Date: _____

Search Topic:

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known.

For Sequence Searches Only *Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

claim 1-10 #1 of 2



R2 = Cy, but not saturated Cy

R3 = C1-5 alkyl, or Cb ← saturated only

Author Search

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=> FILE HCAPLUS
FILE 'HCAPLUS' ENTERED AT 12:11:39 ON 16 MAY 2008
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FILE COVERS 1907 - 16 May 2008  VOL 148 ISS 20
FILE LAST UPDATED: 14 May 2008  (20080514/ED)

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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.
'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> D QUE L14
L7              STR
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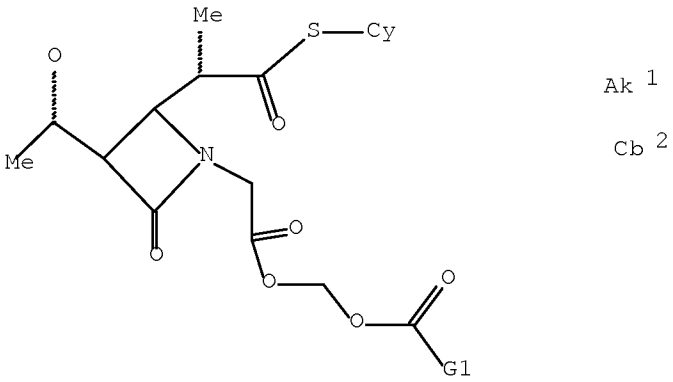

G1 [@1],[@2]

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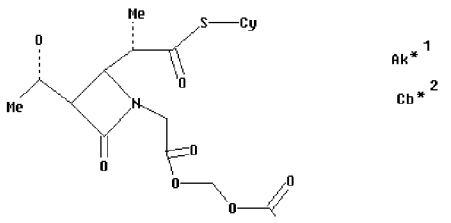

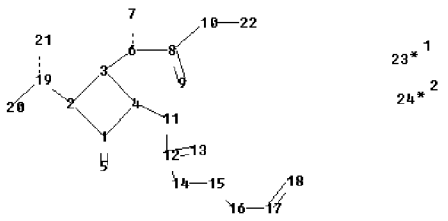

chain nodes :
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 29
ring nodes :
1 2 3 4
chain bonds :
1-5 2-19 3-6 4-11 6-7 6-8 8-9 8-10 10-22 11-12 12-13 12-14 14-15 15-16
16-17 17-18 17-29 19-20 19-21
ring bonds :
1-2 1-4 2-3 3-4
exact/norm bonds :
1-2 1-4 1-5 2-3 3-4 4-11 6-7 8-9 8-10 10-22 12-13 12-14 14-15 15-16
16-17 17-18 17-29 19-21
exact bonds :
2-19 3-6 6-8 11-12 19-20

G1:[*1],[*2]

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:CLASS 6:CLASS 7:CLASS 8:CLASS 9:CLASS
10:CLASS
11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:CLASS
19:CLASS 20:CLASS
21:CLASS 22:Atom 23:CLASS 24:Atom 29:CLASS
Generic attributes :
22:
Saturation : Unsaturated
24:
Saturation : Saturated

Element Count :
Node 23: Limited
C,C1-5

L9 7 SEA FILE=REGISTRY SSS FUL L7

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L11           5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9
L12         787 SEA FILE=HCAPLUS ABB=ON  PLU=ON  NISHINO K?/AU
L13        2355 SEA FILE=HCAPLUS ABB=ON  PLU=ON  KOGA T?/AU
L14           3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L12 OR L13) AND L11


=> FILE WPIX
FILE 'WPIX' ENTERED AT 12:11:46 ON 16 MAY 2008
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FILE LAST UPDATED:                          13 MAY 2008   <20080513/UP>
MOST RECENT THOMSON SCIENTIFIC UPDATE:     200830      <200830/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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    March 2008. No update date (UP) has been created for the
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    20060101/UPIC and 20061231/UPIC, 20070601/UPIC, 20071001/UPIC,
    20071130/UPIC and 20080401/UPIC.
    ECLA reclassifications to April and US national classifications to
    the end of January 2008 have also been loaded. Update dates
    20080401/UPEC and /UPNC have been assigned to these. <<<

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    http://www.stn-international.de/stndatabases/details/epc_0803.zip
    Supplement of all changed ECLA items:
    http://www.stn-international.de/stndatabases/details/ecla_0804s.zip <<<

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=> D QUE L19
L7             STR
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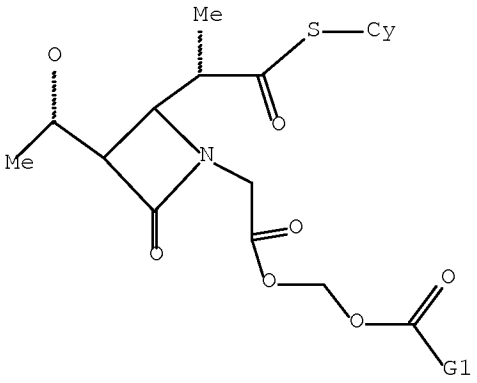

Ak 1

Cb 2

G1 [@1],[@2]

Structure attributes must be viewed using STN Express query preparation.

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L12         787 SEA FILE=HCAPLUS ABB=ON  PLU=ON  NISHINO K?/AU
L13        2355 SEA FILE=HCAPLUS ABB=ON  PLU=ON  KOGA T?/AU
L16           2 SEA FILE=WPIX SSS FUL L7
L18           2 SEA FILE=WPIX ABB=ON  PLU=ON  L16/DCR
L19           2 SEA FILE=WPIX ABB=ON  PLU=ON  L18 AND (L12 OR L13)


=> DUP REM L14 L19
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PROCESSING COMPLETED FOR L14
PROCESSING COMPLETED FOR L19
L31           3 DUP REM L14 L19 (2 DUPLICATES REMOVED)
                ANSWERS '1-3' FROM FILE HCAPLUS

=> D IBIB ED ABS FHITSTR L31 1-3

L31  ANSWER 1 OF 3  HCAPLUS  COPYRIGHT 2008 ACS on STN DUPLICATE 1
ACCESSION NUMBER:         2006:1030206  HCAPLUS  Full-text
DOCUMENT NUMBER:          145:397271
TITLE:                    Preparation of 1β-methylcarbapenem intermediates
                          in crystalline form
INVENTOR(S):              Ageno, Takafumi; Yamamoto, Shogo; Koga,
                          Teruyoshi
PATENT ASSIGNEE(S):       Kaneka Corporation, Japan
SOURCE:                   PCT Int. Appl., 19pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 Japanese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.           KIND   DATE        APPLICATION NO.         DATE
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     WO 2006104131         A1    20061005    WO 2006-JP306239        20060328
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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

KR 2007116926 A 20071211 KR 2007-724756 20071026

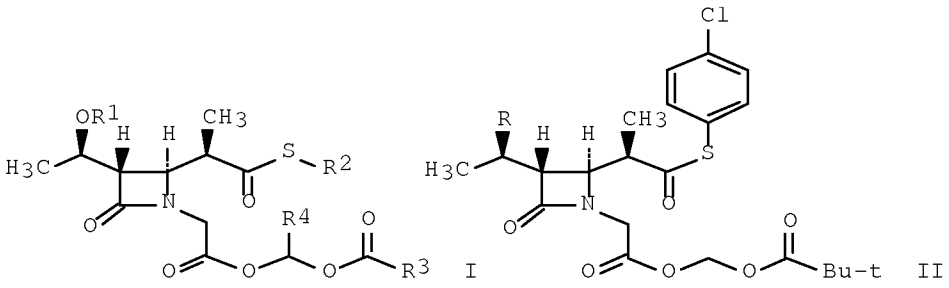
PRIORITY APPLN. INFO.: JP 2005-94266 A 20050329

WO 2006-JP306239 W 20060328

OTHER SOURCE(S): CASREACT 145:397271; MARPAT 145:397271

ED Entered STN: 05 Oct 2006

GI



AB A process for the preparation of crystal azetidinone derivs. I [wherein R1 = OH-protective group; R2 = aryl or heteroaryl; R3 = alkyl, cycloalkyl or (cyclo)alkoxy; R4 = H or alkyl], which have high purity and are easy to handle, is disclosed. For instance, silylation of alc. II (R = OH) with TMSCl followed by crystallization in toluene gave crystal II (R = OTMS). I are useful as intermediates for the synthesis of crystal 1β- methylcarbapenem compds.

IT 692779-23-0P

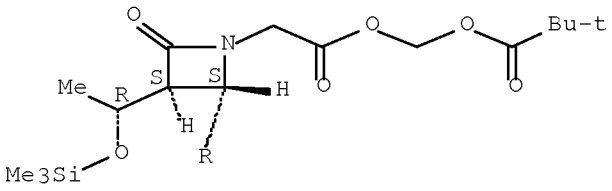
RL: IMF (Industrial manufacture); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

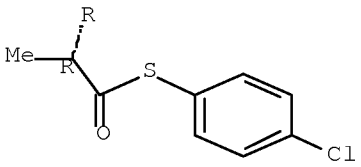
(preparation of 1β-methylcarbapenem intermediates in crystalline form)

RN 692779-23-0 HCAPLUS

CN 1-Azetidineacetic acid, 2-[(1R)-2-[(4-chlorophenyl)thio]-1-methyl-2-oxoethyl]-4-oxo-3-[(1R)-1-[(trimethylsilyl)oxy]ethyl]-, (2,2-dimethyl-1-oxopropoxy)methyl ester, (2S,3S)- (CA INDEX NAME)

Absolute stereochemistry.





REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2004:430813 HCAPLUS Full-text
DOCUMENT NUMBER: 140:423830
TITLE: Process for preparation of novel intermediates for carbapenem derivatives
INVENTOR(S): Nishino, Keita; Koga, Teruyoshi
PATENT ASSIGNEE(S): Kaneka Corporation, Japan
SOURCE: PCT Int. Appl., 41 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004043973	A1	20040527	WO 2003-JP14419	20031113
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003284545	A1	20040603	AU 2003-284545	20031113
EP 1582526	A1	20051005	EP 2003-774004	20031113
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1708504	A	20051214	CN 2003-80101964	20031113
CN 101172962	A	20080507	CN 2007-10154713	20031113
IN 2005KN00831	A	20060630	IN 2005-KN831	20050506
US 20060252929	A1	20061109	US 2006-533868	20060424

PRIORITY APPLN. INFO.:	JP 2002-330127	A	20021113
	CN 2003-80101964	A3	20031113
	WO 2003-JP14419	W	20031113

OTHER SOURCE(S): MARPAT 140:423830

ED Entered STN: 27 May 2004
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

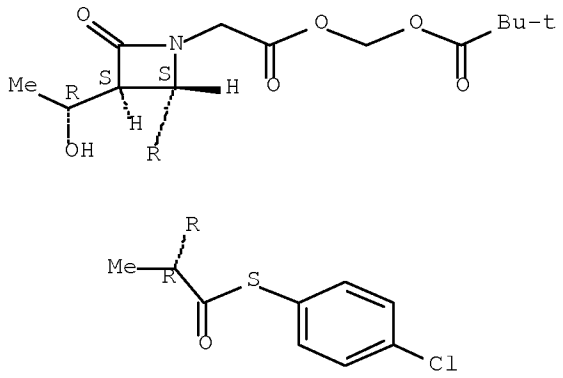
AB This invention pertains to a method for producing novel intermediates, which are useful in efficiently producing 1β-methylcarbapenem compds., with general formula of I [wherein R1 = TMS or Et3Si; R3 = alkyl or cycloalkyl], which comprises reacting II [where R2 = (un)substituted aryl or heteroaryl] with a trialkylsilyl chloride, followed by cyclization reaction in the presence of a strong base. For example, the compound III was prepared by treating IV (preparation given) with Et3SiCl in toluene in the presence of Et3N, followed by reaction with ClPO(OPh)2 in THF in the presence of tert-BuOK and PhCH2Br. This invention provides a method to make novel intermediates which are useful in efficiently producing 1β-methylcarbapenem compds. with industrial advantages.

IT 692779-22-9P
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; preparation of novel intermediates for carbapenem derivs.)

RN 692779-22-9 HCAPLUS

CN 1-Azetidineacetic acid, 2-[(1R)-2-[(4-chlorophenyl)thio]-1-methyl-2-oxoethyl]-3-[(1R)-1-hydroxyethyl]-4-oxo-, (2,2-dimethyl-1-oxopropoxy)methyl ester, (2S,3S)- (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L31 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:430804 HCAPLUS Full-text
DOCUMENT NUMBER: 140:423517
TITLE: Process for producing carbapenem compounds for oral administration
INVENTOR(S): Nishino, Keita; Koga, Teruyoshi
PATENT ASSIGNEE(S): Kaneka Corporation, Japan
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent

LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004043961	A1	20040527	WO 2003-JP14420	20031113
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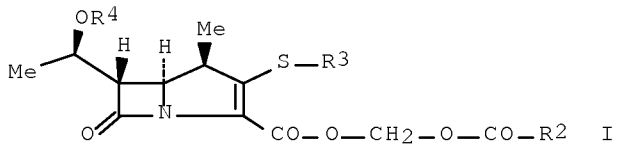
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003284546	A1	20040603	AU 2003-284546	20031113
EP 1580191	A1	20050928	EP 2003-774005	20031113
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 20060009442	A1	20060112	US 2005-533183	20050428
IN 2005KN00826	A	20060811	IN 2005-KN826	20050506
PRIORITY APPLN. INFO.:			JP 2002-330128 A	20021113
			WO 2003-JP14420 W	20031113

OTHER SOURCE(S): MARPAT 140:423517
ED Entered STN: 27 May 2004
GI



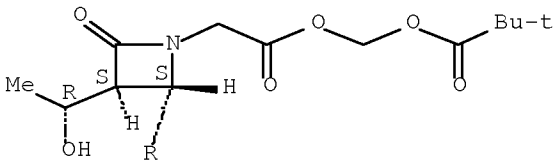
I

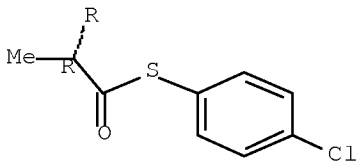
AB The title compds. I [R2 = alkyl, etc.; R3 = organic group; R4 = H, trimethylsilyl, etc.] are prepared by reacting a (diphenylphosphoryloxy)methyloxoazabicyclo[3.2.0]heptenecarboxylic acid ester derivative (II) with R3SH [R3 = organic group] in the presence of a base and optionally removing a protecting group in II.

IT 692779-22-9P
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(process for producing carbapenem compds. for oral administration by reacting diphenylphosphoryloxy)methyloxoazabicyclo[3.2.0]heptenecarboxylic acid ester derivative with thiol compound)

RN 692779-22-9 HCAPLUS
CN 1-Azetidineacetic acid, 2-[(1R)-2-[(4-chlorophenyl)thio]-1-methyl-2-oxoethyl]-3-[(1R)-1-hydroxyethyl]-4-oxo-, (2,2-dimethyl-1-oxopropoxy)methyl ester, (2S,3S)- (CA INDEX NAME)

Absolute stereochemistry.





REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

Structure Search

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FILE COVERS 1907 - 16 May 2008  VOL 148 ISS 20
FILE LAST UPDATED: 14 May 2008  (20080514/ED)

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 substance identification.
'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> D QUE L11
L7              STR
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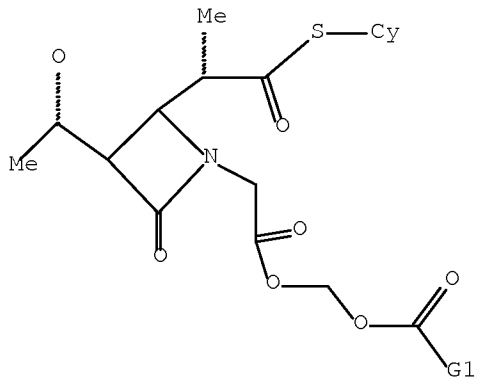

Ak 1

Cb 2

G1 [@1],[@2]

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Structure attributes must be viewed using STN Express query preparation.
L9             7 SEA FILE=REGISTRY SSS FUL L7
L11            5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9


=> S L11 NOT L14
L32            2 L11 NOT L14

=> FILE WPIX
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MOST RECENT THOMSON SCIENTIFIC UPDATE:     200830      <200830/DW>
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    20071130/UPIC and 20080401/UPIC.
    ECLA reclassifications to April and US national classifications to
    the end of January 2008 have also been loaded. Update dates
    20080401/UPEC and /UPNC have been assigned to these. <<<

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    http://www.stn-international.de/stndatabases/details/epc_0803.zip
    Supplement of all changed ECLA items:
    http://www.stn-international.de/stndatabases/details/ecla_0804s.zip <<<

>>> Please note that the COPYRIGHT notification has changed <<<
'BI,ABEX' IS DEFAULT SEARCH FIELD FOR 'WPIX' FILE

=> D QUE L18
L7              STR
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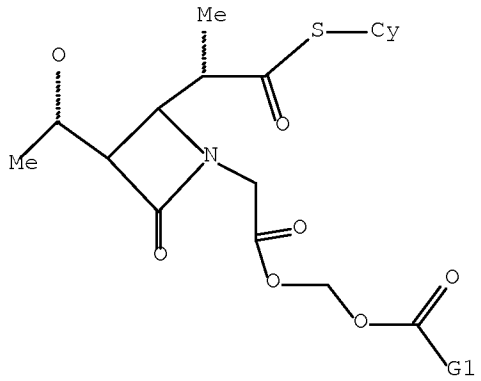

Ak 1

Cb 2

G1 [@1],[@2]

Structure attributes must be viewed using STN Express query preparation.

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L16             2 SEA FILE=WPIX SSS FUL L7
L18             2 SEA FILE=WPIX ABB=ON  PLU=ON  L16/DCR


=> S L18 NOT L19
L33             0 L18 NOT L19

=> FILE BABS
FILE 'BABS' ENTERED AT 12:13:00 ON 16 MAY 2008
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FILE LAST UPDATED: 17 MAR 2008       <20080317/UP>
FILE COVERS 1980 TO DATE.

=> D QUE L24
L24             1 SEA FILE=BABS ABB=ON  PLU=ON  6253412/BABSAN


=> FILE BEILSTEIN
FILE 'BEILSTEIN' ENTERED AT 12:13:08 ON 16 MAY 2008
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FILE LAST UPDATED ON April 1, 2008

FILE COVERS 1771 TO 2008.
*** FILE CONTAINS 10.322,808  SUBSTANCES ***

>>>PLEASE NOTE: Reaction Data and substance data are stored in
   separate documents and can not be searched together in one query.
   Reaction data for BEILSTEIN compounds may be displayed
   immediately with the display codes PRE (preparations) and REA
   (reactions).  A substance answer set retrieved after the search
   for a chemical name, a compounds with available reaction
   information by combining with PRE/FA, REA/FA or more generally
   with RX/FA. The BEILSTEIN Registry Number (BRN) is the link
   between a BEILSTEIN compound and belonging reactions. For mo
   detailed reaction searches BRNs can be searched as reaction
   partner BRNs Reactant BRN (RX.RBRN) or Product BRN (RX.PBRN).<<<

>>> FOR SEARCHING PREPARATIONS SEE HELP PRE  <<<

*********************************************************************
* PLEASE NOTE THAT THERE ARE NO FORMATS FREE OF COST.               *
* SET NOTICE FEATURE: THE COST ESTIMATES CALCULATED FOR SET NOTICE  *
* ARE BASED ON THE HIGHEST PRICE CATEGORY. THEREFORE; THESE         *
* ESTIMATES MAY NOT REFLECT THE ACTUAL COSTS.                       *
* FOR PRICE INFORMATION SEE HELP COST                               *
*********************************************************************

>>> Price change as of January 1st, 2008: Connect Time and Structure
    Search fees re-introduced. See NEWS and HELP COST <<<

=> D QUE L25
L7              STR
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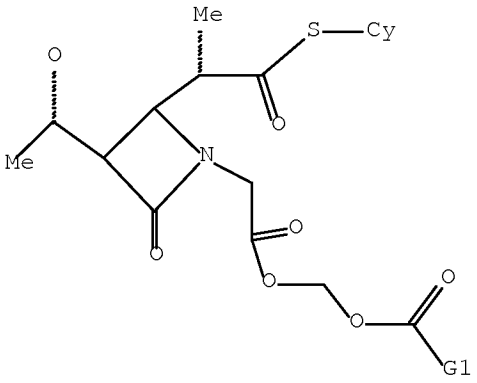


Ak 1

Cb 2

G1 [@1],[@2]

Structure attributes must be viewed using STN Express query preparation.
L22 2 SEA FILE=BEILSTEIN SSS FUL L7
L23 1 SEA FILE=BEILSTEIN ABB=ON PLU=ON L22 AND BABSAN/FA
L25 1 SEA FILE=BEILSTEIN ABB=ON PLU=ON L22 NOT L23

=> FILE MARPAT
FILE 'MARPAT' ENTERED AT 12:13:16 ON 16 MAY 2008
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE CONTENT: 1961-PRESENT VOL 148 ISS 18 (20080509/ED)

SOME MARPAT RECORDS ARE DERIVED FROM INPI DATA FOR 1961-1987

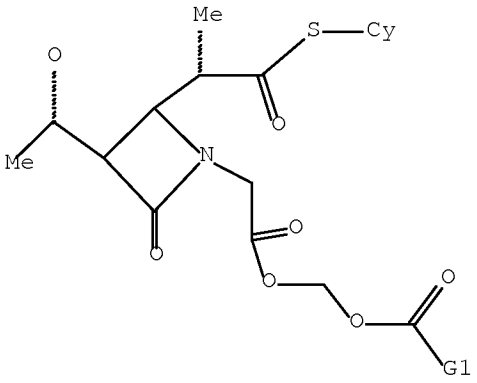
MOST RECENT CITATIONS FOR PATENTS FROM MAJOR ISSUING AGENCIES
(COVERAGE TO THESE DATES IS NOT COMPLETE):

US 20080075660 27 MAR 2008
DE 102007022448 27 MAR 2008
EP 1902632 26 MAR 2008
JP 2008069085 27 MAR 2008
WO 2008036980 27 MAR 2008
GB 2441892 19 MAR 2008
FR 2905949 21 MAR 2008
RU 2321037 27 MAR 2008
CA 2611532 08 MAR 2008

Expanded G-group definition display now available.

Effective December 15th the iteration and answer limits in MARPAT
have increased from 100,000 to 200,000 for both on-line and batch
searches. For more information on MARPAT search limits, type HELP
SLIMITS at an arrow prompt.

=> D QUE L30
L26 STR



Ak 1

Cb 2

G1 [@1],[@2]

Structure attributes must be viewed using STN Express query preparation:
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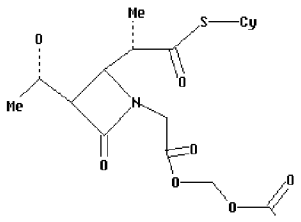
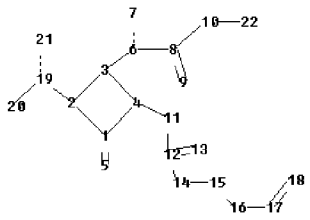


Ak* 1

Cb* 2



23* 1

24* 2

chain nodes :
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 29
ring nodes :
1 2 3 4
chain bonds :
1-5 2-19 3-6 4-11 6-7 6-8 8-9 8-10 10-22 11-12 12-13 12-14 14-15 15-16
16-17 17-18 17-29 19-20 19-21
ring bonds :
1-2 1-4 2-3 3-4
exact/norm bonds :
1-2 1-4 1-5 2-3 3-4 4-11 6-7 8-9 8-10 10-22 12-13 12-14 14-15 15-16
16-17 17-18 17-29 19-21
exact bonds :
2-19 3-6 6-8 11-12 19-20

G1:[*1],[*2]

```
Connectivity :
23:1 E exact RC ring/chain
Match level :
1:Atom  2:Atom  3:Atom  4:Atom  5:CLASS  6:CLASS  7:CLASS  8:CLASS  9:CLASS
10:CLASS
11:CLASS  12:CLASS  13:CLASS  14:CLASS  15:CLASS  16:CLASS  17:CLASS  18:CLASS
19:CLASS  20:CLASS
21:CLASS  22:Atom  23:CLASS  24:Atom  29:CLASS
Generic attributes :
22:
Saturation             : Unsaturated
24:
Saturation             : Saturated

Element Count :
Node 23: Limited
    C,C1-5




L30           6 SEA FILE=MARPAT SSS FUL L26


=> DUP REM L32 L33 L24 L25 L30
L33 HAS NO ANSWERS
DUPLICATE IS NOT AVAILABLE IN 'BEILSTEIN'.
ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE
FILE 'HCAPLUS' ENTERED AT 12:13:39 ON 16 MAY 2008
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2008 AMERICAN CHEMICAL SOCIETY (ACS)

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FILE 'BEILSTEIN' ENTERED AT 12:13:39 ON 16 MAY 2008
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FILE 'MARPAT' ENTERED AT 12:13:39 ON 16 MAY 2008
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2008 American Chemical Society (ACS)
PROCESSING COMPLETED FOR L32
PROCESSING COMPLETED FOR L33
PROCESSING COMPLETED FOR L24
PROCESSING COMPLETED FOR L25
PROCESSING COMPLETED FOR L30
L34           8 DUP REM L32 L33 L24 L25 L30 (2 DUPLICATES REMOVED)
                ANSWERS '1-2' FROM FILE HCAPLUS
                ANSWER '3' FROM FILE BEILSTEIN
                ANSWERS '4-8' FROM FILE MARPAT

=> D IBIB ED ABS HITSTR 1-2; D IDE ALLREF 3; D IBIB AB QHIT 4-8

L34  ANSWER 1 OF 8  HCAPLUS  COPYRIGHT 2008 ACS on STN DUPLICATE 1
ACCESSION NUMBER:        2000:69226  HCAPLUS  Full-text
```
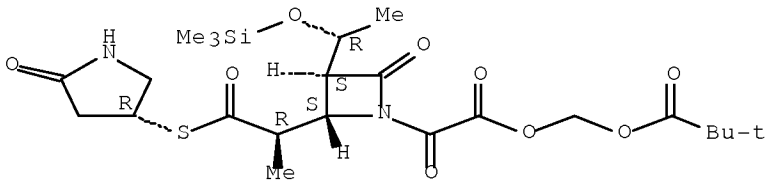
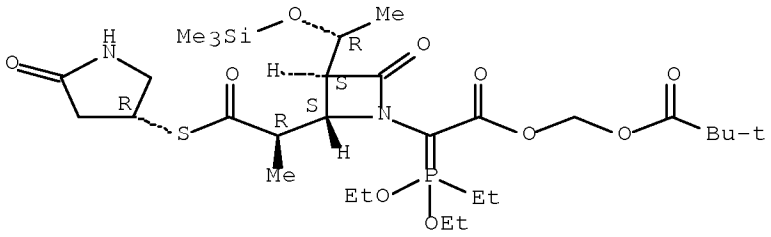

DOCUMENT NUMBER: 132:264997
TITLE: A short-step synthesis of orally active carbapenem antibiotic CS-834
AUTHOR(S): Mori, Makoto; Oida, Sadao
CORPORATE SOURCE: Medicinal Chemistry Research Laboratories, Sankyo Co., Ltd., Tokyo, 140-8710, Japan
SOURCE: Chemical & Pharmaceutical Bulletin (2000), 48(1), 126-130
CODEN: CPBTAL; ISSN: 0009-2363
PUBLISHER: Pharmaceutical Society of Japan
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 132:264997
ED Entered STN: 30 Jan 2000
AB An orally bioavailable carbapenem CS-834, which is a pivaloyloxymethyl (POM) ester-type prodrug and has (R)-5-oxopyrrolidin-3-ylthio moiety at the C-2 position of the 1β-methylcarbapenem skeleton, is currently under clin. trial. A short-step synthesis of CS-834 using phosphorus ylide from the intramol. Wittig-type reaction in the key step for cyclization to the bicyclic carbapenem system was accomplished. The POM ester group was found to be suitable for the cyclization conditions.
IT 176179-69-4P 263020-29-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of the orally active carbapenem antibiotic CS-834)
RN 176179-69-4 HCAPLUS
CN 1-Azetidineacetic acid, 2-[(1R)-1-methyl-2-oxo-2-[[(3R)-5-oxo-3-pyrrolidinyl]thio]ethyl]-α,4-dioxo-3-[(1R)-1-[(trimethylsilyl)oxy]ethyl]-, (2,2-dimethyl-1-oxopropoxy)methyl ester, (2S,3S)- (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



RN 263020-29-7 HCAPLUS
CN 1-Azetidineacetic acid, α-(diethoxyethylphosphoranylidene)-2-[(1R)-1-methyl-2-oxo-2-[[(3R)-5-oxo-3-pyrrolidinyl]thio]ethyl]-4-oxo-3-[(1R)-1-[(trimethylsilyl)oxy]ethyl]-, (2,2-dimethyl-1-oxopropoxy)methyl ester, (2S,3S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

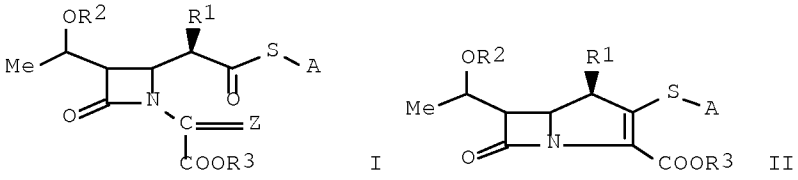


REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2008 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 1996:273416 HCAPLUS Full-text
DOCUMENT NUMBER: 124:316873
TITLE: Preparation of carbapenem esters
INVENTOR(S): Oida, Sadao; Mori, Makoto
PATENT ASSIGNEE(S): Sankyo Co, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08059663	A	19960305	JP 1994-200495	19940825

PRIORITY APPLN. INFO.: JP 1994-200495 19940825
OTHER SOURCE(S): CASREACT 124:316873; MARPAT 124:316873
ED Entered STN: 10 May 1996
GI



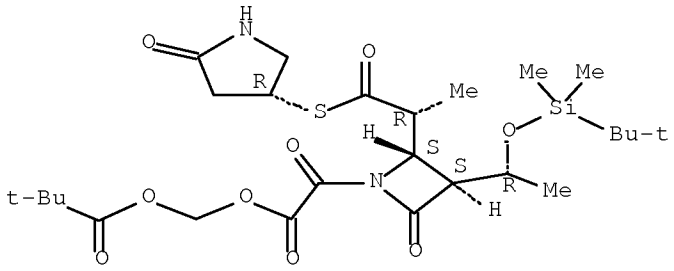
AB Azetidinone derivs. I [R1 = H, Me; R2 = H, protecting group; R3 = carboxy protecting group hydrolyzable in the bio system; A = (N-substituted) 2-oxo-3-(or -4-)pyrrolidinyl; Z = O] react with PR4(R5)2 [R4 = alkyl, alkoxy; R5 = alkoxy, aryloxy] followed by cyclization of the resulting I [R1-R3 and A same as above, Z = PR4(R5)2] to give carbapenem esters II. Thus, I [R1 = Me, R2 = TBDMS, R3 = pivaloyloxymethyl, A = 2-oxo-4(R)-pyrrolidinyl, Z = O] (preparation given) was reacted with di-Et methylphosphonate in toluene for 30 min and the product was refluxed in CH2Cl2 for 2 h to give 81% II [R1-R3 and A same as above].
IT 176179-67-2P 176179-69-4P
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic

preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of carbapenem esters)

RN 176179-67-2 HCAPLUS

CN 1-Azetidineacetic acid, 3-[1-[[(1,1-dimethylethyl)dimethylsilyl]oxy]ethyl]-2-[1-methyl-2-oxo-2-[(5-oxo-3-pyrrolidinyl)thio]ethyl]-α,4-dioxo-, (2,2-dimethyl-1-oxopropoxy)methyl ester, [2S-[2α[S*(S*)],3β(S*)]]- (9CI) (CA INDEX NAME)

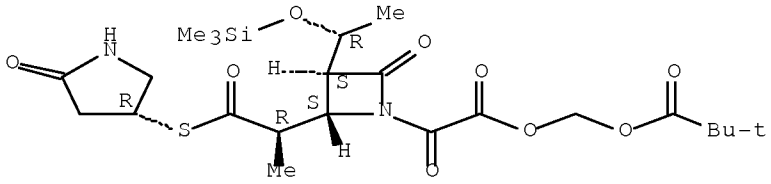
Absolute stereochemistry.



RN 176179-69-4 HCAPLUS

CN 1-Azetidineacetic acid, 2-[(1R)-1-methyl-2-oxo-2-[[(3R)-5-oxo-3-pyrrolidinyl]thio]ethyl]-α,4-dioxo-3-[(1R)-1-[(trimethylsilyl)oxy]ethyl]-, (2,2-dimethyl-1-oxopropoxy)methyl ester, (2S,3S)- (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



L34 ANSWER 3 OF 8 BEILSTEIN COPYRIGHT 2008 BEILSTEIN MDL on STN

Beilstein Records (BRN):	8665704
Molec. Formula (MF):	C29 H51 N2 O10 P S Si
Molecular Weight (MW):	678.85
Lawson Number (LN):	27185, 25978, 3777, 3762, 1516, 1176, 689, 298
File Segment (FS):	Stereo compound
Compound Type (CTYPE):	heterocyclic
Constitution ID (CONSID):	7340267
Tautomer ID (TAUTID):	8159639
Entry Date (DED):	2001/01/30

Update Date (DUPD): 2001/01/30

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

Field Availability:

Code	Name	Occurrence
BRN	Beilstein Records	1
MF	Molecular Formula	1
FW	Formular Weight	1
LN	Lawson Number	8
FS	File Segment	1
CTYPE	Compound Type	1
CONSID	Constitution ID	1
TAUTID	Tautomer ID	1
ED	Entry Date	1
UPD	Update Date	1

This substance also occurs in Reaction Documents:

Code	Name	Occurrence
RX	Reaction Documents	2
RXREA	Substance is Reaction Reactant	1
RXPRO	Substance is Reaction Product	1

All References:
ALLREF

1. Mori, Makoto; Oida, Sadao, Chem.Pharm.Bull., CODEN: CPBTAL, 48(1), <2000>, 126 - 130; BABS-6253412

L34 ANSWER 4 OF 8 MARPAT COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 145:397271 MARPAT Full-text
TITLE: Preparation of 1β-methylcarbapenem intermediates in crystalline form
INVENTOR(S): Ageno, Takafumi; Yamamoto, Shogo; Koga, Teruyoshi
PATENT ASSIGNEE(S): Kaneka Corporation, Japan
SOURCE: PCT Int. Appl., 19pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006104131	A1	20061005	WO 2006-JP306239	20060328

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX,

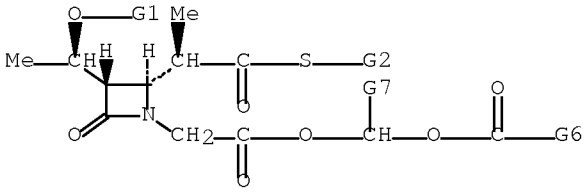
MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

KR 2007116926 A 20071211 KR 2007-724756 20071026
PRIORITY APPLN. INFO.: JP 2005-94266 20050329
WO 2006-JP306239 20060328

OTHER SOURCE(S): CASREACT 145:397271

AB A process for the preparation of crystal azetidinone derivs. I [wherein R1 = OH-protective group; R2 = aryl or heteroaryl; R3 = alkyl, cycloalkyl or (cyclo)alkoxy; R4 = H or alkyl], which have high purity and are easy to handle, is disclosed. For instance, silylation of alc. II (R = OH) with TMSCl followed by crystallization in toluene gave crystal II (R = OTMS). I are useful as intermediates for the synthesis of crystal 1β- methylcarbapenem compds.

MSTR 1



G2 = Ph (opt. substd. by 1 or more halo)
G6 = alkyl <containing 1-10 C>
Patent location: claim 1

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 5 OF 8 MARPAT COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 140:423830 MARPAT Full-text
TITLE: Process for preparation of novel intermediates for carbapenem derivatives
INVENTOR(S): Nishino, Keita; Koga, Teruyoshi
PATENT ASSIGNEE(S): Kaneka Corporation, Japan
SOURCE: PCT Int. Appl., 41 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004043973	A1	20040527	WO 2003-JP14419	20031113

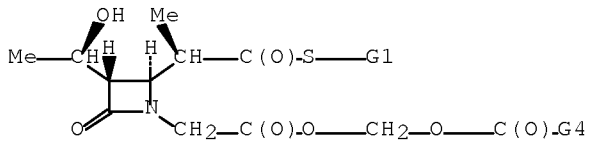
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,

CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO,
NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,
TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003284545	A1	20040603	AU 2003-284545	20031113	
EP 1582526	A1	20051005	EP 2003-774004	20031113	
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK					
CN 1708504	A	20051214	CN 2003-80101964	20031113	
CN 101172962	A	20080507	CN 2007-10154713	20031113	
IN 2005KN00831	A	20060630	IN 2005-KN831	20050506	
US 20060252929	A1	20061109	US 2006-533868	20060424	
PRIORITY APPLN. INFO.:			JP 2002-330127	20021113	
			CN 2003-80101964	20031113	
			WO 2003-JP14419	20031113	

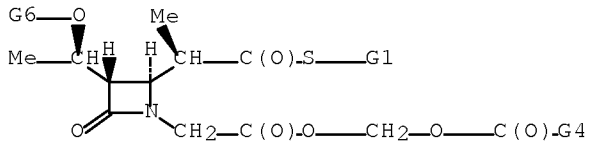
AB This invention pertains to a method for producing novel intermediates, which are useful in efficiently producing 1β-methylcarbapenem compds., with general formula of I [wherein R1 = TMS or Et3Si; R3 = alkyl or cycloalkyl], which comprises reacting II [where R2 = (un)substituted aryl or heteroaryl] with a trialkylsilyl chloride, followed by cyclization reaction in the presence of a strong base. For example, the compound III was prepared by treating IV (preparation given) with Et3SiCl in toluene in the presence of Et3N, followed by reaction with ClPO(OPh)2 in THF in the presence of tert-BuOK and PhCH2Br. This invention provides a method to make novel intermediates which are useful in efficiently producing 1β-methylcarbapenem compds. with industrial advantages.

MSTR 1



G1 = Ph
G4 = alkyl <containing 1-10 C>
Patent location: claim 1

MSTR 2



G1 = Ph
G4 = alkyl <containing 1-10 C>
Patent location: claim 1

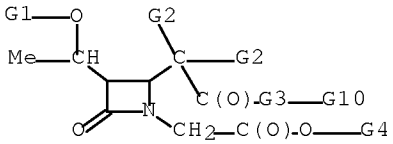
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 6 OF 8 MARPAT COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 139:350578 MARPAT Full-text
TITLE: Process for producing carbapenem derivatives
INVENTOR(S): Tanabe, Yoo; Sunagawa, Makoto
PATENT ASSIGNEE(S): Sumitomo Pharmaceuticals Co., Ltd., Japan
SOURCE: PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003089432	A1	20031030	WO 2003-JP5061	20030421
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003227444	A1	20031103	AU 2003-227444	20030421
PRIORITY APPLN. INFO.:			JP 2002-119378	20020422
			WO 2003-JP5061	20030421

AB A process for easily producing the carbapenem derivative shown below. The process, which is for producing a carbapenem derivative represented by the following formula (I) and (II) (wherein R1 = HO-protecting group; R2, R3 = H, lower alkyl; R5 = an ester residue; R4a = an ester residue, an organic group), is characterized by reacting an 2-azetidinonediacetic acid diesters represented by the formula (III) (wherein R1, R2, R3, R5 = same as above; Y = O, S; R4 = an ester residue) in the presence of a Lewis acid and a Lewis base and optionally causing a mercaptan derivative of formula R-SH (R = an organic group) to act on the resultant reaction product II. The carbapenem derivative is useful as an intermediate for carbapenem antibacterial agents. Thus, 1 M TiCl4/CH2Cl2 (0.60 mL) was added dropwise to a solution of 105 mg S-octyl (2R)-2-[(2S,3S)-1-allyloxycarbonylmethyl-3- [(1R)-1-(tert-butyldimethylsilyloxy)ethyl]-4-oxoazetidin-2- yl]thiopropionate and 122 mg tributylamine in 0.5 mL CH2Cl2 at -50 to -40° over 15-20 min with stirring and then stirred for 1 h to give, after workup and silica gel chromatog., 65% allyl (4R,5S,6S)-3-octylthio-6- [(1R)-1-(tert-butyldimethylsilyloxy)ethyl]-4-methyl-7-oxo-1- azabicyclo[3.2.0]hept-2-ene-2-carboxylate.

MSTR 1



G2 = loweralkyl
G3 = S
G4 = alkyl (substd. by G5)
G5 = loweralkanoyloxy (opt. substd. by loweralkoxy)
G10 = Ph
Patent location: claim 1
Note: additional oxo formation also disclosed

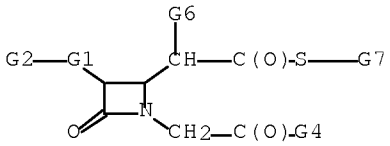
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L34 ANSWER 7 OF 8 MARPAT COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 121:133858 MARPAT Full-text
TITLE: preparation of 2-(hydroxyalkyl)carbapenem derivatives as intermediates for antibacterials
INVENTOR(S): Kondo, Kazuhiko; Horikawa, Koshi; Iwasaki, Tameo
PATENT ASSIGNEE(S): Tanabe Seiyaku Co, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

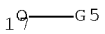
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06100564	A	19940412	JP 1993-35989	19930225
JP 2643753	B2	19970820		
PRIORITY APPLN. INFO.:			JP 1992-99020	19920306
			JP 1992-99021	19920306
			JP 1992-209843	19920806

OTHER SOURCE(S): CASREACT 121:133858
AB Title compds. I [R1 = (un)protected hydroxyalkyl; R2 = H, ester residue; R3 = H, alkyl; O-A = esterified OH group], useful for the preparation of antibacterial (no data) mercaptopenem derivs. II [R4 = organic group; R11 = (un)substituted hydroxyalkyl; R21 = H, ester residue], are prepared from azetidinones III [Z = thiol ester residue] via ring closure and intramol. esterification in the presence of Lewis acids or oxidizing agents. E.g., Na bis(trimethylsilyl)amide in THF was added to a mixture of (3S,4S)-3-[(1R)-1-tert-butyldimethylsilyoxyethyl]-4-[(1R)-1-tert- butylthiocarbonylethyl]-1-(allyloxycarbonylmethyl)-2-azetidinone (preparation given) and THF, the resulting mixture was cooled at -30° for 10 min, ZnI2 was added, the resulting mixture was cooled at -35 to -30° for 15 min, (PhO)2P(O)Cl was added, the resulting mixture was cooled at 0° for 2 h and poured into a pH 7.0 phosphoric acid buffer to give the title compound (1R,5R,6S)-6-[(1R)-1-(tert-butyldimethylsilyloxy)ethyl]-1- methyl-2-diphenylphosphoryloxycarbapen-2-em-3-carboxylic acid allyl ester.

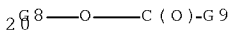
MSTR 1



G1 = loweralkylene (opt. substd. by G2)
G2 = OH
G4 = 17



G5 = 20



G6 = loweralkyl
G7 = Ph
G8 = loweralkylene
G9 = loweralkyl (opt. substd. by loweralkoxy)
Derivative: or salts
Patent location: claim 1

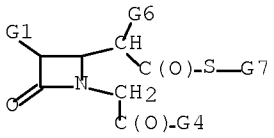
L34 ANSWER 8 OF 8 MARPAT COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 120:217093 MARPAT Full-text
TITLE: Process for preparing carbapenem derivatives
INVENTOR(S): Iwasaki, Tameo; Kondo, Kazuhiko; Horikawa, Hiroshi
PATENT ASSIGNEE(S): Tanabe Seiyaku Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 9 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 582291	A1	19940209	EP 1993-112499	19930804
EP 582291	B1	19971105		
R: DE, FR, GB, IT				
JP 06056836	A	19940301	JP 1992-209840	19920806
US 5359059	A	19941025	US 1993-100460	19930802

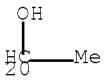
PRIORITY APPLN. INFO.: JP 1992-209840 19920806
OTHER SOURCE(S): CASREACT 120:217093
AB Title compds. I (R1 = (un)protected hydroxy-substituted alkyl; R2 = H, ester residue; R3 H, alkyl; R4 = substituent to be used at 2-position of carbapenem antimicrobials) useful industrially , are prepared by subjecting the azetidinone II to intramol. cyclization and elimination of R4S followed by

readding R4S to the 2-position of the carbapenem skeleton. (3S,4S)-3-[(1R)-1-tert-butyldimethylsilyloxyethyl]-4-[(1R)-1-carboxyethyl]- 2-azetidinone in THF was added to NaH followed by Me3CSiMe2Cl and the mixture formed was added allyl bromoacetate and THF followed by sodium bis(trimethylsilyl)amide to give (3S,4S)-3-[(1R)-1-tert- butyldimethylsilyloxyethyl]-4-[(1R)-1-carboxyethyl]-1-(allyloxycarbonylmethyl)-2-azeditinone (III). To III in MeCN was added 4-(dimethylamino)pyridine, (4R)-4-mercaptopyrrolidine-2-thione and dicyclohexylcarbodiimide to (3S,4S)-3-[(1R)-1-tert-butyldimethylsilyloxyethyl]-4-[(1R)-1-[[(4R)pyrrolidine-2-thion-4-ylthio]carbonyl]ethyl]-1-(allyloxycarbonylmethyl)2-azetidinone which in THF was added to sodium bis(trimethylsilyl)amide followed by Me3SiCl, ClP(O)(OPh)2, DMF, and Nu4N+ F- to give after workup the title allyl (1R, 5S,6S)-2-[(4R)-pyrrolidine-2-thion-4-ylthio]-6-[(1R)-1-tert-butyldimethylsilyloxyethyl]-1-methylcarbapen-2-em-3-carboxyate.

MSTR 2

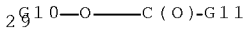


G1 = 20

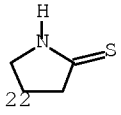


G4 = 14

G5 = 29



G6 = alkyl <containing 1-6 C>
G7 = 22



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G10    = alkylene <containing 1-6 C>
G11    = alkyl <containing 1-6 C>
Derivative:                or salts
Patent location:           claim 1
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Search History

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L1            1 SEA ABB=ON  PLU=ON  US2006-533868/APPS

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L2           37 SEA ABB=ON  PLU=ON  (100-39-0/BI OR 105318-23-8/BI OR 105318-28
                -3/BI OR 1070-89-9/BI OR 157429-42-0/BI OR 157542-49-9/BI OR
                161715-24-8/BI OR 179337-57-6/BI OR 18997-19-8/BI OR 2524-64-3/
                BI OR 682747-73-5/BI OR 692779-22-9/BI OR 692779-24-1/BI OR
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L3      1893414 SEA ABB=ON  PLU=ON  NC4/ES
L4            2 SEA ABB=ON  PLU=ON  L2 AND L3
L5       112495 SEA ABB=ON  PLU=ON  NC3/ES
L6            6 SEA ABB=ON  PLU=ON  L2 AND L5
L7              STRUCTURE UPLOADED
L8            0 SEA SSS SAM L7
L9            7 SEA SSS FUL L7
L10           2 SEA ABB=ON  PLU=ON  L9 AND L2

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L11           5 SEA ABB=ON  PLU=ON  L9
L12         787 SEA ABB=ON  PLU=ON  NISHINO K?/AU
L13        2355 SEA ABB=ON  PLU=ON  KOGA T?/AU
L14           3 SEA ABB=ON  PLU=ON  (L12 OR L13) AND L11

     FILE 'WPIX' ENTERED AT 12:04:02 ON 16 MAY 2008
L15           0 SEA SSS SAM L7
L16           2 SEA SSS FUL L7
L17           0 SEA ABB=ON  PLU=ON  (L12 OR L13) AND L16
L18           2 SEA ABB=ON  PLU=ON  L16/DCR
L19           2 SEA ABB=ON  PLU=ON  L18 AND (L12 OR L13)

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L21           0 SEA SSS SAM L7
L22           2 SEA SSS FUL L7
L23           1 SEA ABB=ON  PLU=ON  L22 AND BABSAN/FA
                SEL BABSAN

     FILE 'BABS' ENTERED AT 12:07:28 ON 16 MAY 2008
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L26             STRUCTURE UPLOADED
L27           0 SEA SUB=L9 SSS SAM L26
L28           7 SEA SUB=L9 SSS FUL L26

     FILE 'MARPAT' ENTERED AT 12:10:40 ON 16 MAY 2008
L29           0 SEA SSS SAM L26
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L30           6 SEA SSS FUL L26

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L32           2 SEA ABB=ON  PLU=ON  L11 NOT L14

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L33           0 SEA ABB=ON  PLU=ON  L18 NOT L19

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L34           8 DUP REM L32 L33 L24 L25 L30 (2 DUPLICATES REMOVED)
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